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November 18, 2003
Slide Show Presentation
for the
Jones Road Public Meeting

Text explaining the slides and graphics is presented here in outline form. References to points or locations on the slides and graphics were explained interactively by the presenter to the audience and could not be included in the outline.

Scroll Down to View

SLIDE 1

JONES ROAD GROUNDWATER PLUME SUPERFUND SITE PUBLIC MEETING PROGRESS REPORT November 18, 2003

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Texas Commission on Environmental Quality

Presenter:

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Texas Commission on Environmental Quality

SLIDE 2

- February, May, August 2003 Sampling Results
- Sample Results Mailout
- November 2003 Sampling

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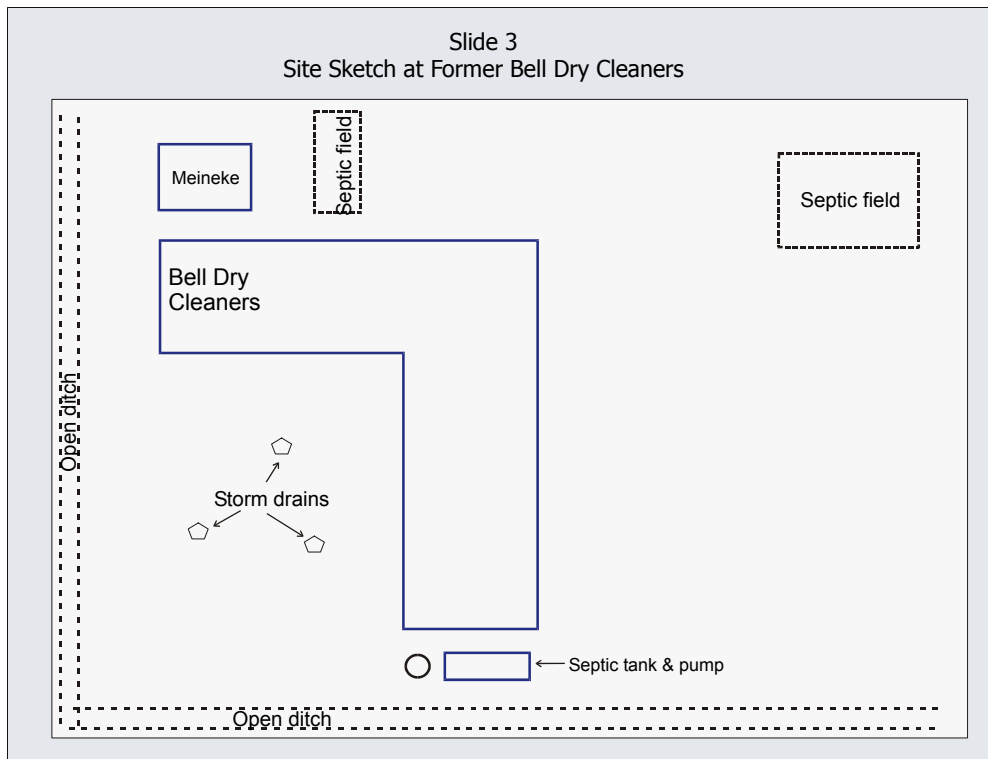
SLIDE 2 QUARTERLY MONITORING AND FILTERING PROGRAMS

As most of you are aware, the Texas Commission on Environmental Quality (TCEQ) has been investigating contamination by **perchloroethylene**, also known as **tetrachloroethylene (PCE)**, trichloroethylene (TCE), dichloroethylene (DCE) and vinyl chloride (VC). These chemicals are commonly associated with the dry cleaning industry. For the remainder of my talk I will simply refer to all of these chemicals collectively as PCE.

I am going to discuss the activities conducted since our last meeting on June 16, 2003. We received the residential water well data for the May sampling event. Those data were reviewed and evaluated, and the residents were informed. Another round of residential water well sampling was conducted in August 2003, and the residents were notified of the analytical results. These maps show the results of the water well sampling for the months of February, May and August of 2003. These maps reflect the concentration of PCE only. The red color indicates the locations that have PCE concentrations in the well water above the Federal maximum contaminant level (MCL) of 5.0 ppb. The yellow color indicates those locations where PCE was detected in the well water, but its concentration was less than the MCL. The green color identifies locations where PCE was not detected in the well water. Areas of white show where samples were not collected, and the areas marked with an "X" indicate no water wells on the lot. Lastly, these maps do not show monitor wells.

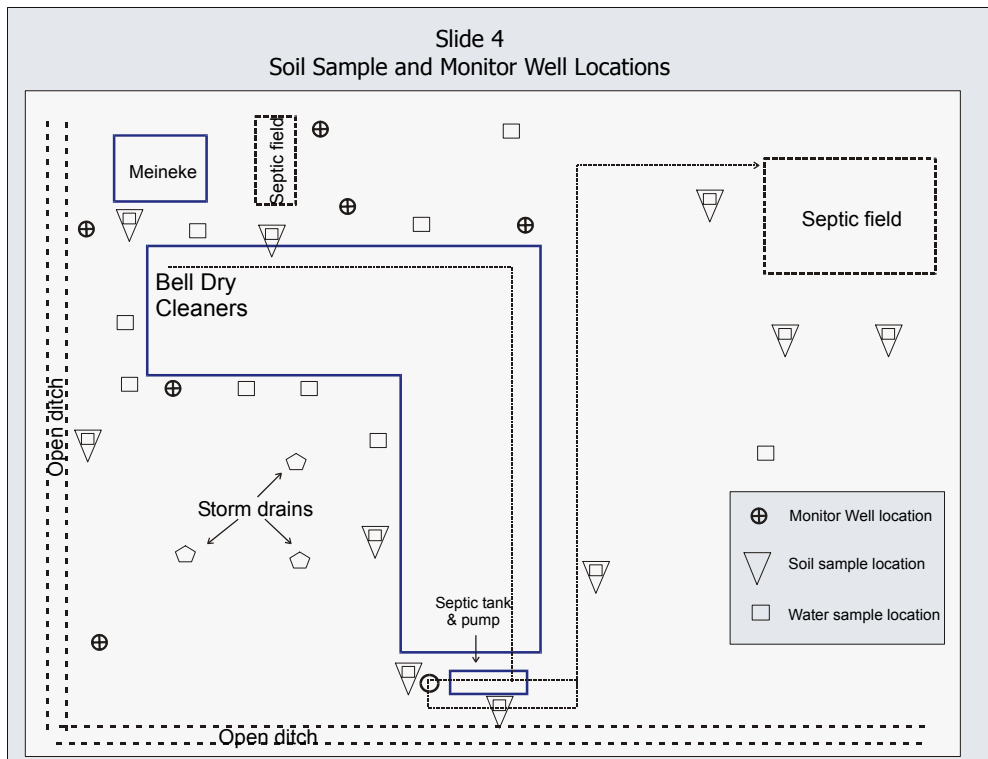
As most of you know, the TCEQ is monitoring wells and filtering those that are affected, to ensure that the residents are not drinking water contaminated with PCE above the MCL. Currently we are collecting water well samples for the November sampling event. During February, May and August of 2003 we sampled 110 residential water wells each time. In November we are planning to sample 119 water wells. Additional wells have been added to the monitoring program in an attempt to refine, verify and provide more definition of the groundwater characteristics and the area of affected wells.

The TCEQ has retained Shaw Engineering and Infrastructure (Shaw) to conduct the water well monitoring.



SLIDE 3 SITE SKETCH AT FORMER BELL DRY CLEANERS

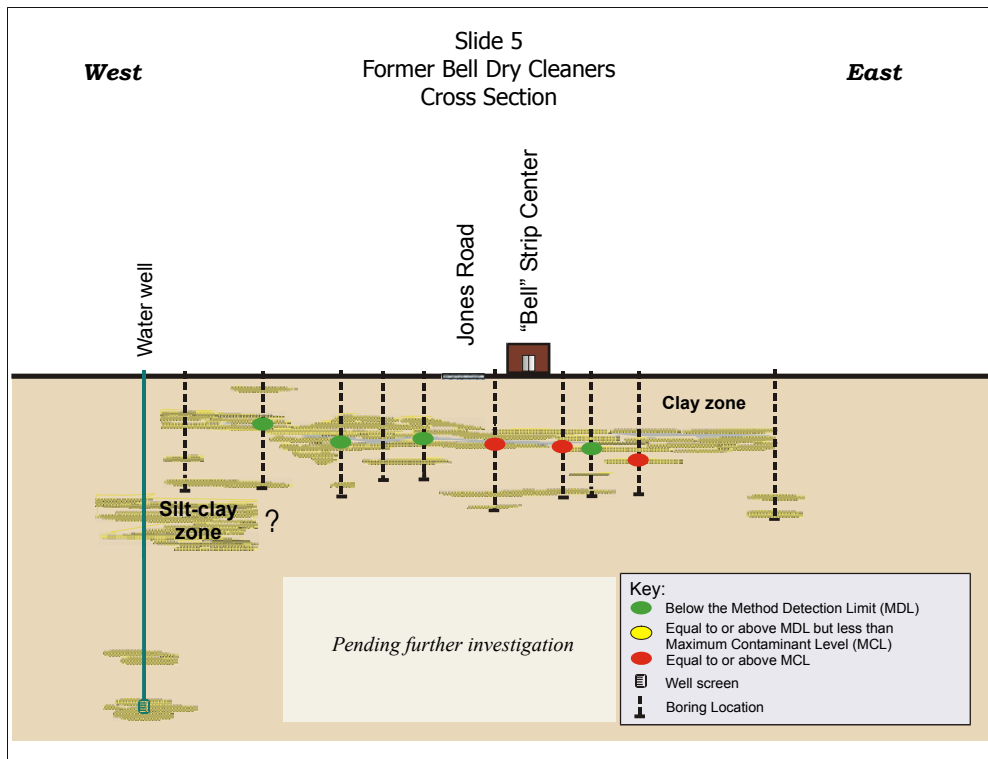
Shaw is also conducting the investigation field work which started August 25, 2003, around the shopping mall where the former Bell Dry Cleaners was located (the former Bell site). **SLIDE # 3** shows the layout of the site.



SLIDE 4 SOIL SAMPLE AND MONITOR WELL LOCATIONS

Many of you may have noticed our consultant's vehicles (Shaw) in the neighborhood during the fall of this year. The consultants were installing soil borings and monitor wells from which groundwater and soil samples were collected. Both Geoprobe and Cone Penetrometer Testing (CPT) technologies were used to investigate the hydrogeology and collect soil and/or groundwater samples.

SLIDE # 4 shows the locations of borings and monitor wells (indicated by these symbols) from which soil or groundwater samples were collected during October 2003 around the former Bell site. This slide shows the location of the dry cleaners, septic system, drains and ditches.

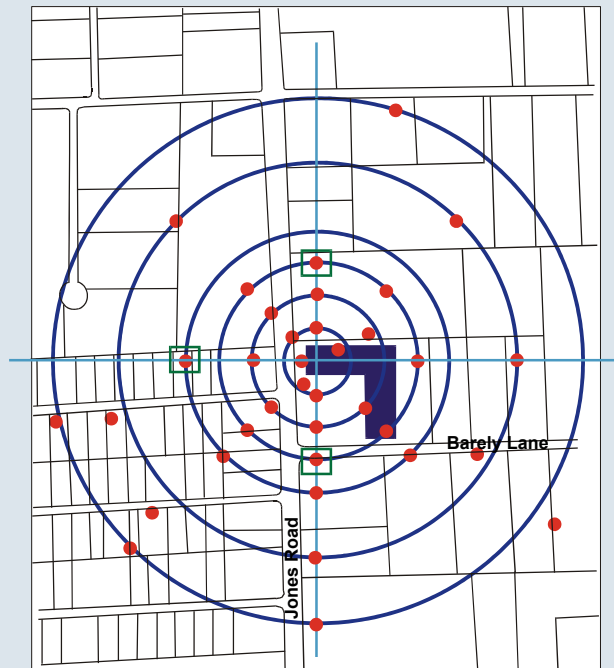


SLIDE 5 FORMER BELL DRY CLEANER CROSS SECTION

The results of the soil borings near the former Bell site indicate that clay and silt zones are present and that the zones of silt are to a large extent isolated from each other by zones of clay. This graphic represents a silt-clay zone, while this one represents a clay zone. Groundwater is present at some of the locations, in the silt zone, but not at others, as shown in **SLIDE #5**.

Our approach in this investigation has been to initially focus on the suspected source of PCE contamination (the former Bell site) and then to step further outward to identify the potential routes of PCE movement through the subsurface. For example, this phase focused on the immediate vicinity of the former Bell site to depths of approximately 30 feet.

Slide 6
Water Sample Locations



SLIDE 6 WATER SAMPLE LOCATIONS

As shown in **SLIDE # 6** an additional phase of the investigation stepped out from the vicinity of the former Bell site and downward to approximately 60 feet. This **SLIDE** shows the locations from which groundwater samples were collected or attempted (some boring locations contained no water). 37 subsurface borings were drilled. 3 monitor wells were also installed in addition to the 6 existing monitor wells near the former Bell site. Groundwater samples have been collected from each of the monitor wells and, if groundwater was present at the location, groundwater samples were also collected from the borings.

Additional objectives of each of the borings were to (1) gather hydrogeologic information, and (2) to determine the depth of groundwater.

SLIDE 7

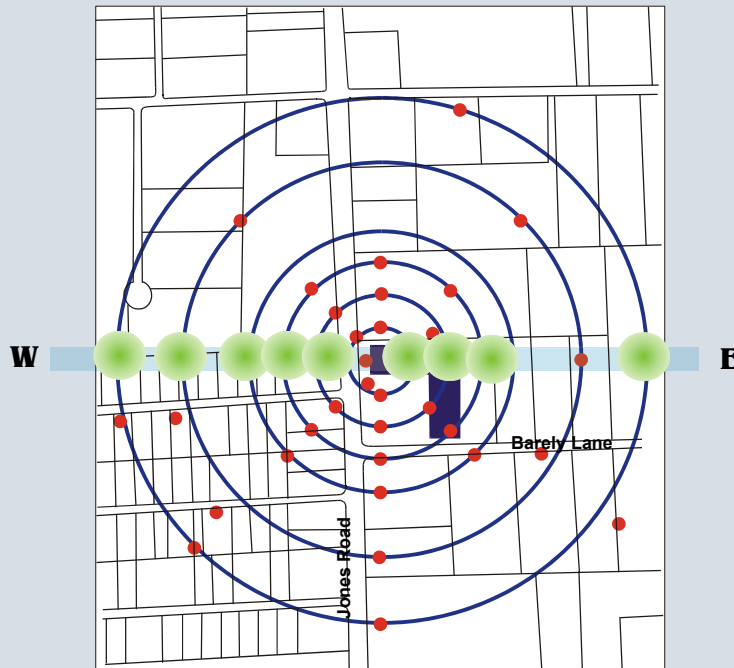
- Harris County Records (septic system at strip center)
- Aerial Photos (ongoing)
- Drinking and Irrigation Well Construction Details (ongoing)
- Property Ownership (ongoing)
- Property Access/Utilities Clearance (for field work)
- Preliminary Evaluation/Interpretation of Field Data (ongoing)
 - Hydrogeology
 - PCE Presence and Movement (migration)

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SLIDE 7 RECORD SEARCHES

In addition to the field investigations, the TCEQ continues to accumulate and review other relevant information. **SLIDE # 7** shows the ongoing records searches being conducted by the TCEQ and their consultants.

Slide 8
Cross Section Location Map



SLIDE 8 EAST/WEST CROSS SECTION LOCATION MAP

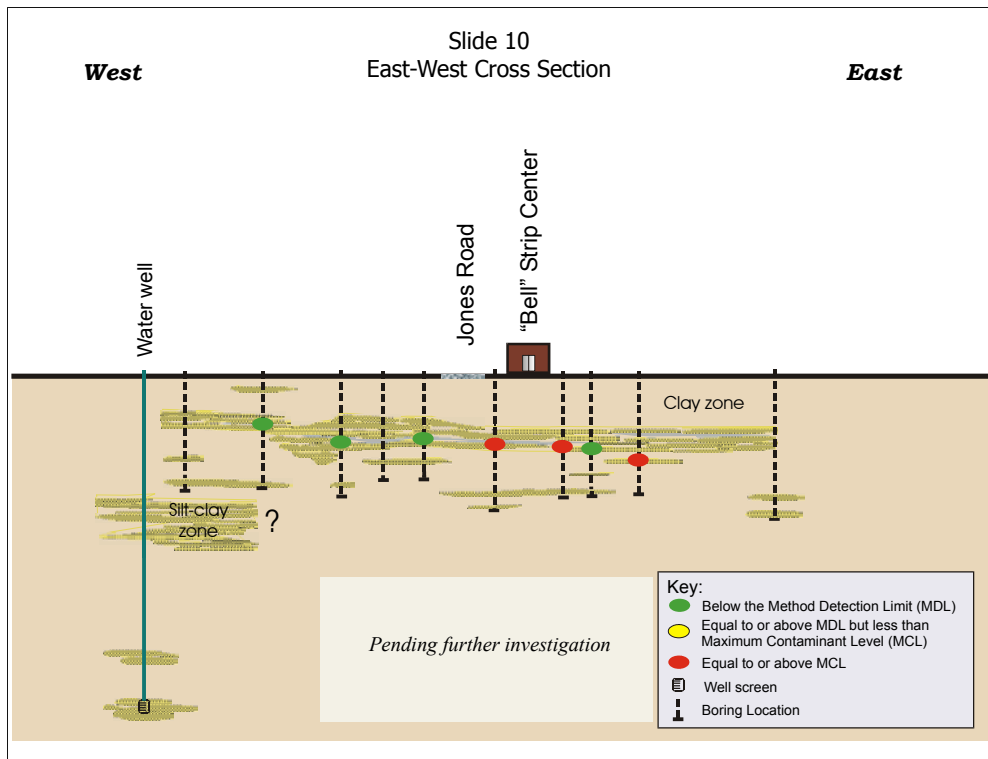
The next two **SLIDES** (8 and 9) indicate the boring locations, which have been linked together in order to interpret and understand the complex geology in the area. By “linked” we don’t mean physically linked, we simply mean the information obtained from the borings has been used to construct a picture, called a “cross section,” which I will show in a moment. In some cases we are also able to incorporate the data from water well logs to supplement our understanding of the geology.

SLIDE # 8 shows the borings linked to form the east west cross section and

Slide 9 North - South Cross Section Location Map

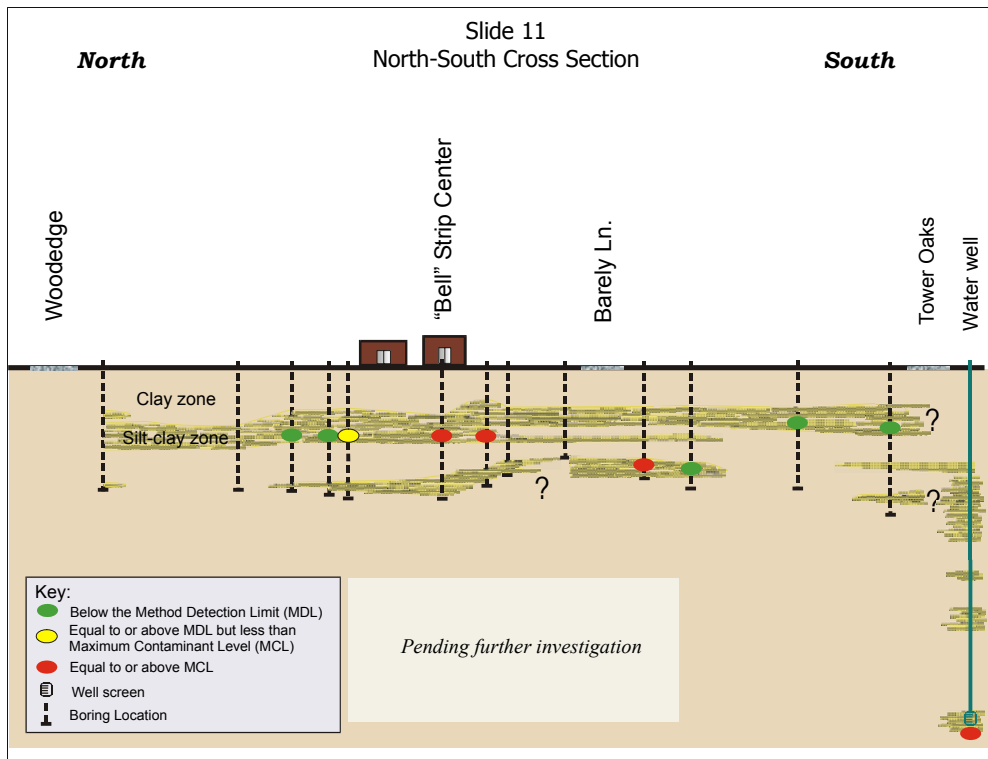


SLIDE # 9 shows the location of borings used in the north south cross section.



SLIDE 10 EAST/WEST CROSS SECTION

These cross sections are conceptual illustrations of our current understanding of the subsurface conditions in the area. The complex hydrogeology of the area may influence the movement of PCE through the subsurface. For the most part groundwater is found in and moves through the zones of silt-clay, not through those of just clay. Likewise, the PCE moves predominantly with the groundwater through the silt-clay zones, and to a lesser extent through the clay zones.



SLIDE 11 NORTH/SOUTH CROSS SECTION

As you can see from these illustrations the hydrogeology and thus the PCE movement through the subsurface is expected to be quite complex. For example: silt-clay zones are present in some areas at certain depths, but are absent at nearby locations. Similarly shallow groundwater may be present at one location and dry at adjacent locations. This presence or absence of silt-clay zones at particular locations explains how groundwater and PCE can be present or absent from one location to the next.

Our initial phase of borings focused on the former Bell site area at depths of approximately 0-60 feet. Each sequential phase of investigation will enhance our understanding of the hydrogeology and the migration of PCE.

SLIDE 12

- PCE at Former Bell Dry Cleaners Site
- General Understanding of Hydrogeology in the Area
- Investigations of Shallow Soil and Groundwater (0-60 feet)
- Presence of PCE in Water Wells

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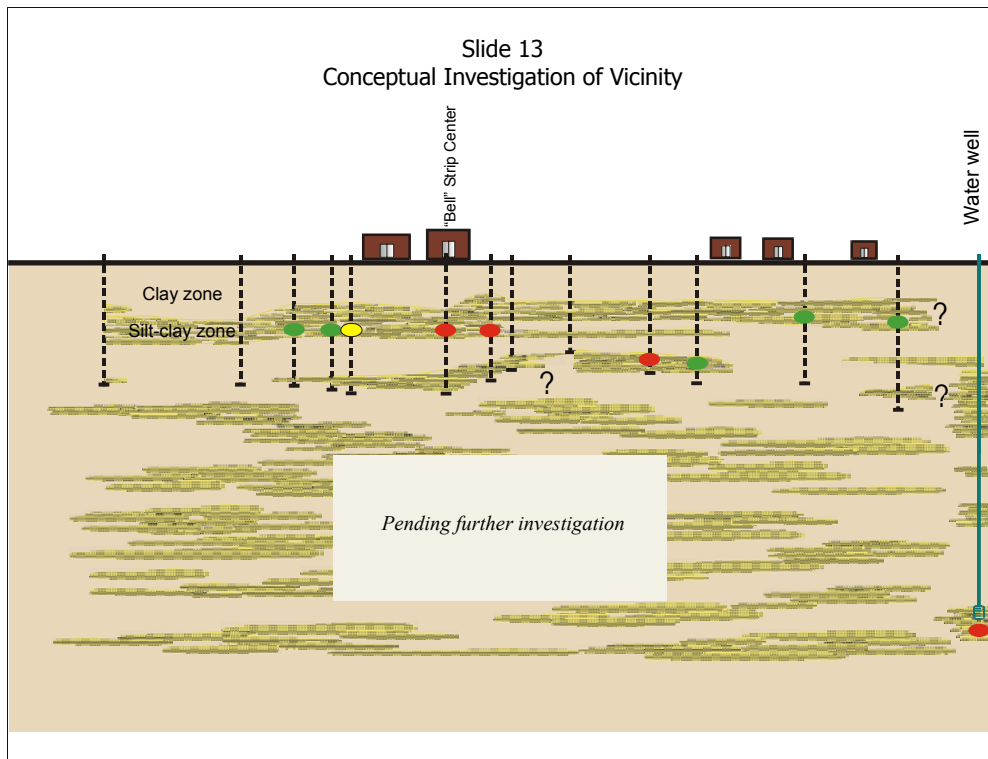
SLIDE 12 CURRENT CONCEPTUAL UNDERSTANDING

Our current understanding of the contamination in the area is based on the following:

- 1) PCE contamination is present in the shallow soils and groundwater at the former Bell site;
- 2) our general understanding of hydrogeology in the area;
- 3) our investigations of shallow groundwater, soil and PCE in the vicinity of the former Bell site;
- 4) the presence of PCE in water wells at greater depths.

Our future investigations will be designed to answer the following question: How did the PCE contamination migrate from the source (presumably the former Bell site) to the groundwater zones used for drinking and irrigation purposes?

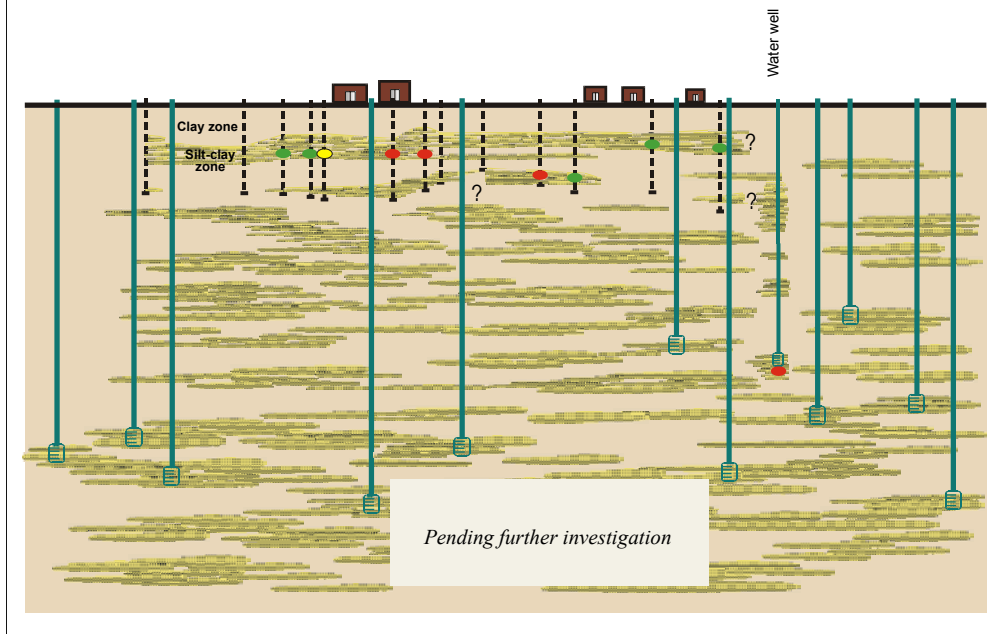
The remaining **SLIDES** are intended to show how we will need to focus future studies in order to answer this question.



SLIDE 13 CONCEPTUAL INVESTIGATION OF VICINITY

SLIDE # 13 draws on the information obtained in the studies I have described, but also shows how at depths of greater than 60 feet the specific routes of PCE movement is unknown. For instance, we need to continue to investigate what happens from here to here.

Slide 14
Conceptual Water Wells

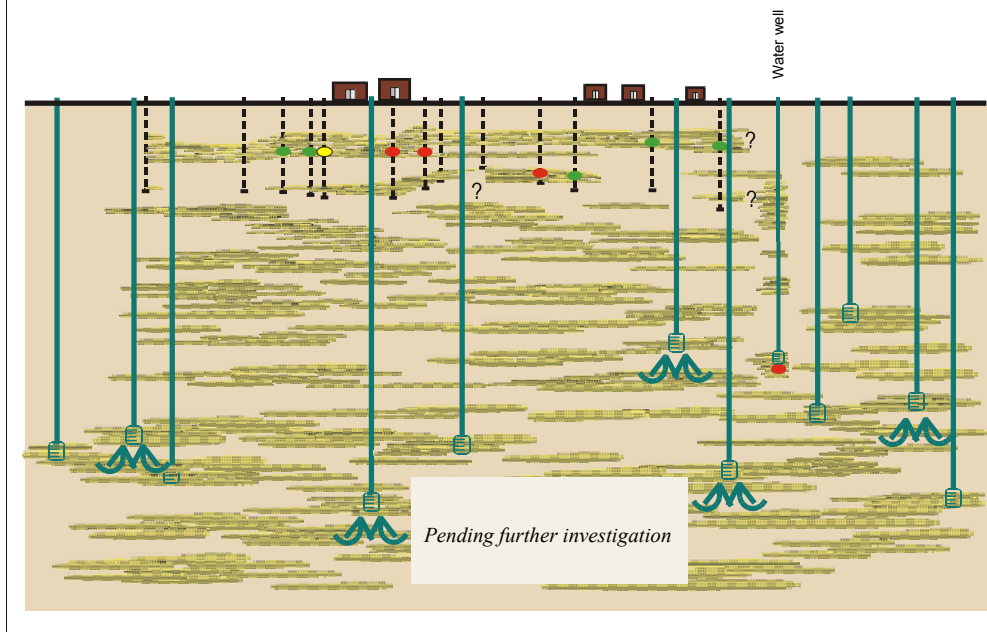


SLIDE 14 CONCEPTUAL WATER WELLS

We have a number of variables influencing the movement of PCE through the subsurface:

- 1) the complex hydrogeological situation I've described;
- 2) the large number of water wells in the vicinity as illustrated in **SLIDE 14**;

Slide 15
Conceptual Water Demand

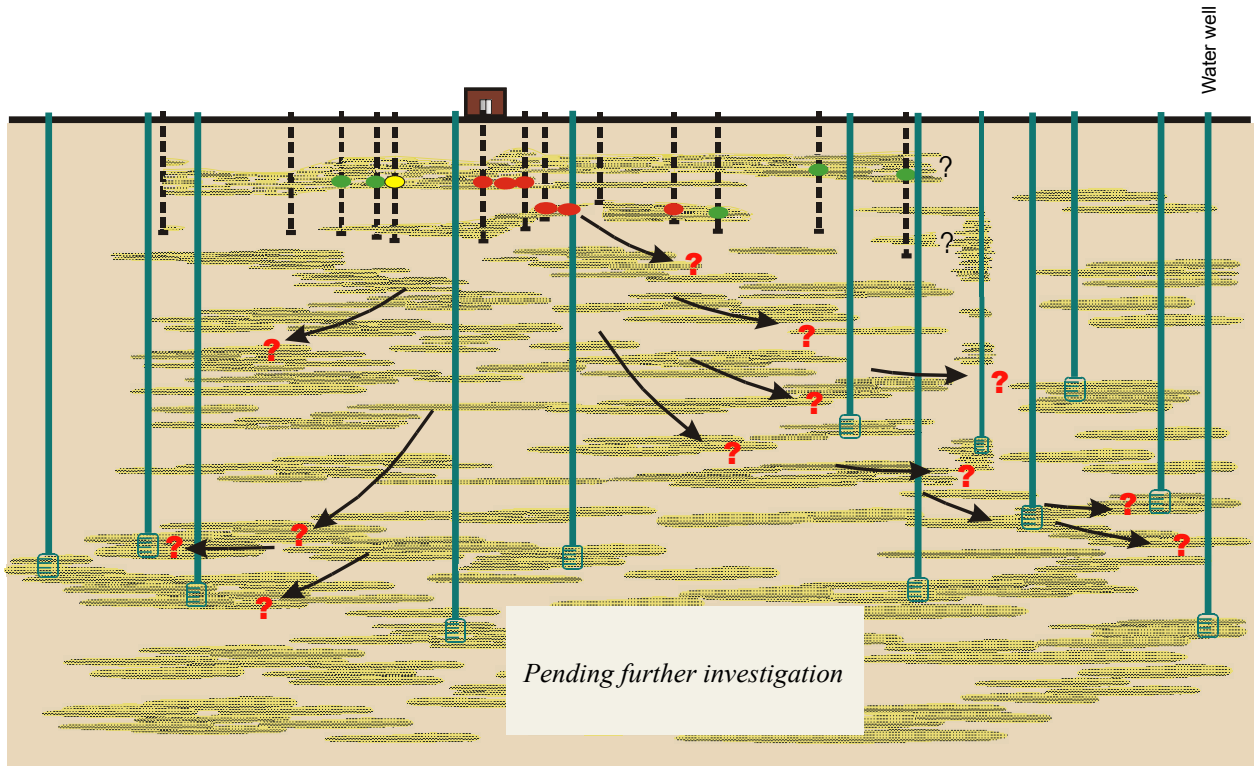


SLIDE 15 CONCEPTUAL WATER DEMAND

Additionally **SLIDE # 15** shows:

- 3) the diverse patterns of water usage among a large population (for example pumps turning on and off at different times of day) and
- 4) the different depths at which these wells are constructed.

Slide 16
Conceptual Route of PCE Migration



SLIDE 16 CONCEPTUAL ROUTE OF PCE MIGRATION

The PCE migration pathways from near the surface to depths of over 200 feet is undoubtedly quite complex. Given this complexity, it is not surprising that the distribution of PCE in the wells of the area is sporadic. This **SLIDE** conceptually shows how the PCE might have migrated from near the ground surface to depths at which water wells are located. What we are illustrating here are the possible or conceptual pathways which the contamination may take to reach the deeper water wells. Again, these pictures are conceptual and for illustrative purposes.

SLIDE 17

SUMMARY

Future Investigations to focus on:

- Source (and/or sources) of PCE Contamination
- Routes of PCE migration
- More Information on Existing Water Wells

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SLIDE 17 SUMMARY

In Summary:

Beginning with the suspected source, the TCEQ is conducting an investigation into the presence and movement of PCE through the subsurface environment to the groundwater zones used for drinking and irrigation.

We are beginning to understand the migration of the PCE from the former Bell site. As our investigation proceeds additional sources may be identified. In order to develop a clean up strategy or remedy, we need to understand the pathways which take the PCE to the zones used for drinking and irrigation purposes. Each phase of field work and accumulation of other data, adds to our understanding of this issue.

Through the investigation process we will keep testing and expanding our conceptual understanding of the hydrogeology and PCE migration. Also, in conjunction with the investigation process, the sampling of residential water wells will continue to insure protection of public health and the environment.



Texas
Commission on
Environmental
Quality

SLIDE 18



Water Well Survey

Please return completed Well Survey in the enclosed pre-addressed envelope.

Location of Well:

Street Address _____

City/Town _____ Texas

Is this address a: (Circle One) ☐ Residence ☐ Business ☐ Vacant Lot

Name of Property Occupant _____ () Telephone Number with Area Code _____

Name of Property Owner _____ () Telephone Number with Area Code _____

Property Owner Mailing Address _____ City _____ State _____ Zip Code _____

Well Information:

Date well was installed? _____ Who installed the well? _____

How deep is the well? _____ What depth is the well screened? _____

Inside diameter of the well? _____ Any recent maintenance? (describe) _____

Depth to water? _____

Is this well currently being used? _____ Recent maintenance performed by? _____

If well is being used? What uses: ☐ Drinking ☐ Livestock ☐ Irrigation ☐ Other (explain below) _____

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SLIDE 18 WATER WELL SURVEY

As we all know there are many wells in the vicinity. However due to the length of time that has passed since many of the wells were installed, our well records are incomplete. Therefore we are asking any of you who may have knowledge of your wells (such as the depth at which they are screened or drilled) to complete this Water Well Survey form and return it in the envelope provided or fax it to the fax number shown on the form.